

14.—*Projasus*—a New Generic Name for Parker's Crayfish, *Jasus parkeri* Stebbing (Palinuridae : "Silentes")

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The family Palinuridae is divisible into the Stridentes (producing sound by antennal movement) and the Silentes.

Jasus parkeri Stebbing, belongs to the Silentes and because of its uniqueness warrants the erection of a new genus. *Projasus* gen. nov. is intermediate between the other two genera of Silentes, *Jasus* and *Palinurellus*.

A key to the genera of Silentes is included.

Introduction

Stebbing (1902) originally placed his new South African species, *parkeri*, in the genus *Jasus* but commented "there is no resemblance so far as I know to any other living Palinurid hitherto described". On the basis of Stebbing's description and figure alone, Holthuis (1946 : 148) considered the species "no *Jasus* at all" and allocated it to the genus *Puerulus* commenting ". . . it has for instance, a distinct stridulating organ, which is entirely absent in the genus *Jasus*". Barnard (1950 : 541) replaced *parkeri* in the genus *Jasus* stating that the stridulating organ is not present, but also recognised that ". . . there is a close resemblance to *Panulirus* [= *Puerulus*] *angulatus* Bate . . .".

Parker, in his excellent papers (1883 and 1884) on the classification of palinurids, divided them into two categories the "Silentes" and the "Stridentes". The ability to produce sound by rubbing a process of the antenna over a raised ridge on the antennular plate has been used extensively in keys and descriptions, yet few workers have adopted Parker's terminology for the two distinct groups. These terms, "Silentes" for the non-stridulating, and "Stridentes" for the stridulating group are very apt and their use is to be encouraged.

This paper presents the results of re-examination of Stebbing's and other specimens of *parkeri* from the South African Museum and concludes that the species *parkeri* does not belong to either *Jasus* or *Puerulus* but to a new genus of the Silentes, *Projasus* gen. nov.

We are very appreciative of Dr. Holthuis' assistance and comments in the final stages of preparation of the paper.

Projasus gen. nov.

Type. *Jasus parkeri* Stebbing, 1902.

Diagnosis.—This genus consists of one species *parkeri* and it differs from all other Palinuridae in possessing four longitudinal rows of spines, separated by smooth regions on the carapace. It differs from the other genera of Silentes in combinations of characters as discussed below.

Description.—

- i Antenna articulated simply; stridulating organ absent.
- ii Carapace with angular sides and with longitudinal spiny ridges, otherwise smooth.
- iii Abdomen smooth, first five segments with median carina.
- iv Supraorbital processes pointed, unarmed and obliquely erect.
- v Eyes produced laterally on eyestalks, not recessed.
- vi Median rostrum and clasping processes very small.
- vii First abdominal segment of female without pleopod.

Remarks.—Parker (1883 and 1884) recognised only one species group in the Silentes and for this group he proposed the sub-genus *Jasus*. Although he did not tabulate *Palinurellus* Von Martens 1878 in his Silentes group (1884, p. 304), he clearly recognised its lack of a stridulating organ and suggested that it was close to the "parent species" of the family Palinuridae (1884, p. 303). *Palinurellus* is now recognised (see Holthuis 1946) as an actual member of the Palinuridae.

Parker's original concept of *Jasus* was based on the species *lalandii* H. Milne Edwards, 1837; *edwardsii* Hutton, 1875 and *hugelii* Heller, 1862 (this species is now regarded as a synonym of *verreauxii* H. Milne Edwards, 1851; see Holthuis 1946). These non-stridulating species form a natural group having in common a cylindrical, uniformly spiny carapace and abdominal terga without median carina, either smooth (*verreauxii*) or with squamiform sculpture (*lalandii* group). *Projasus* gen. nov. is therefore clearly outside the boundaries of the *Jasus* species group as envisaged by Parker (cf. ii, iii. above).

Palinurellus bears a general resemblance to *Projasus* in the possession of median, but less pronounced, carinae on the abdominal terga. However, *Palinurellus* has no spines on the carapace, and no supraorbital processes, the eyes are simply recessed at the sides of a large rostrum which lacks clasping processes; the first abdominal segment of the female possesses a pleopod (Holthuis pers. comm., 1964) (cf. iv, v, vi, vii above).

Both Holthuis (1946) and Barnard (1950) noted the close general resemblance of *parkeri* to *Puerulus* (one of the Stridentes), presumably based on the angular shape of the carapace. The absence of a stridulating organ however easily separates *Projasus parkeri* from all Stridentes and places it in the Silentes group.

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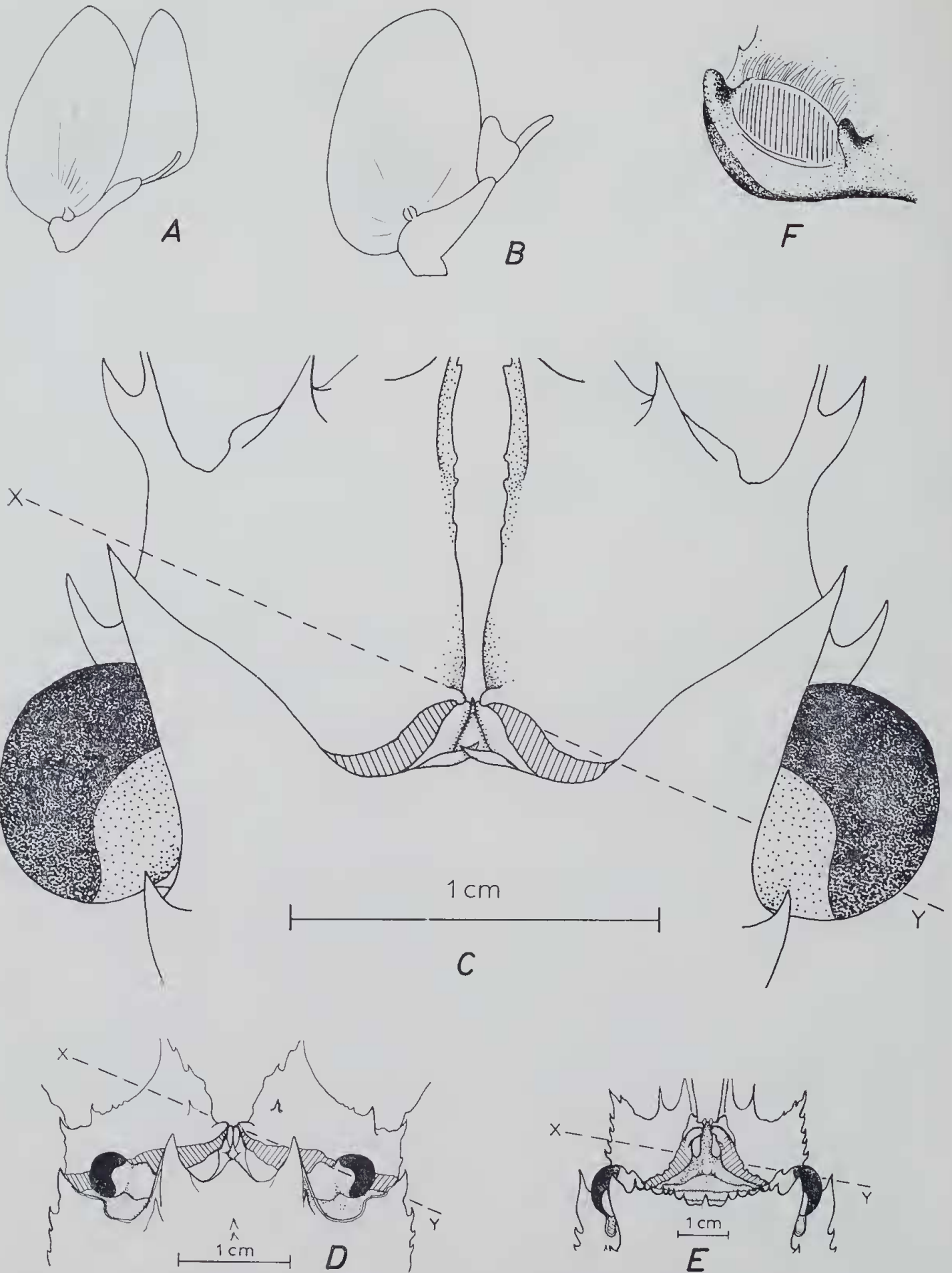


Fig. 1.—A, B, C, *Projasus parkeri*; A, female pleopod of second abdominal segment B, female pleopod of third abdominal segment C, anterior region of carapace. D, *Jasus lalandii* anterior region of carapace. E, F, *Palinurus gilchristi*; E, anterior region of carapace F, underside of stridulating pad. X-Y indicates axis of antennal articulation.

We regard *Projasus* as a genus of *Silentes* intermediate between *Palinurellus* and *Jasus*. It differs as much from the other genera of *Silentes*, as *Puerulus* does from the other genera of *Stridentes*.

Key to the Genera of *Silentes* Palinurids

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|---|---|---------------------|
| (1) Supraorbital processes present; median rostrum and clasping processes small; carapace with spines | 2 | |
| Supraorbital processes absent; median rostrum large; clasping processes absent; carapace with low tubercles | | <i>Palinurellus</i> |
| (2) Carapace with rounded sides and covered with many subequal spines; abdomen smooth or squamiform | | <i>Jasus</i> |
| Carapace with angular sides and with longitudinal spiny ridges; abdomen with median carina | | <i>Projasus</i> |

This key is based on our examination of all taxa of *Silentes* recognised by Holthuis (1946 and 1963) except *Palinurellus gundlachi* and *Palinurellus gundlachi* var. *wiensecki*.

Projasus parkeri (Stebbing)

(Figs. 1 A, B, C, and 2.)

Jasus parkeri Stebbing 1902 p. 39, pl. 7 and 1910 p. 375; Barnard 1950 p. 540.

Puerulus parkeri; Holthuis 1946 pp. 110 and 148.

Type Locality.—". . . shrimp trawl, Buffalo River north 15 miles. Depth, 310 fathoms. Bottom, coral and mud". [lat. 33°S, long. 28°E.]

Description.—The original description and figure given by Stebbing (1902) require little amplification. Only two features are redescrbed here—the female pleopods and various structures in the anterior region of the carapace.

In his key to the genera of Palinuridae, Holthuis (1946 p. 113) indicated the value of the shape of the various female pleopods as taxonomic characters and illustrated fifteen pleopods of several species but *parkeri* was not among these. Stebbing (1902) and Barnard (1950) gave only brief descriptions of the female pleopods but did not illustrate them.

Because of the lack of detail in the anterior region of the carapace in Stebbing's (1902) original illustration of *parkeri*, Holthuis (1946) interpreted the exaggerated ridges of the antennular plate as part of a stridulating mechanism. As a result he incorrectly allocated it to the genus *Puerulus*.

Female pleopods (fig. 1A and B).—There are no appendages on the first abdominal segment. The endopod of the pleopod of the second segment is almost as large as the exopod and bears a reduced stylamblys (fig. 1A). On the third, as on the fourth and fifth abdominal segments, the endopod of the pleopod is not foliate and the stylamblys is present (fig. 1B).

Anterior region of carapace, fig. 1C.—The rostrum is small, acute, upturned and embraced by two small, pointed clasping processes. The narrow antennular plate runs forward and downward and its exposed sides are longitudinally convex. The articulating process of each antenna abutts the latero-distal region of the antennular plate and merely pivots on it when the antenna is raised.

Comparison of *Silentes* and *Stridentes*

In the *Silentes*, the sides of the antennular plate are not well developed or polished and the axis of articulation of the antenna passes through the point of articulation of the antennal process with the antennular plate. Due to the simple rotation of the antennal process, no sound is produced when the antenna is raised. The axis of articulation of the antenna is indicated by the oblique broken lines X-Y for *P. parkeri* in fig. 1C and for *Jasus lalandii* in fig. 1D.

On the other hand, the *Stridentes* have highly polished areas on the sides of the antennular plate and well developed lateral processes on the antennae. These processes have a ribbed pad on their under surface and the axis of articulation is nearly transverse. When the antenna is raised, the ribbed stridulating pad moves over the polished area on the side of the antennular plate producing the characteristic stridulation of the *Stridentes* group. In



Fig. 2.—*Projasus parkeri* female, carapace length 58 mm, off Buffalo River, South African Museum No. A995, now housed in Western Australian Museum.

figs. 1E and F, the anterior region and the underside of the stridulating pad of *Palinurus gilchristi* is illustrated. The genus *Panulirus* with its very broad antennular plate probably represents the greatest development of the stridulating apparatus.

The *Silentes* however, are not without means of sound production. A. Heydorn of the Division of Sea Fisheries, South Africa, reports that *Jasus lalandii* makes loud "clicking" noises under water without movement of the antennae and believes that the sound is probably produced by the mandibles.

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Memorial

Douglas Elwood White

Douglas Elwood White — M.Sc., Ph.D., F.R.A.C.I., died as the result of a car accident on the evening of 4th April, 1964, at the early age of 53 years.

His long association with the University of Western Australia where he was Professor of Organic Chemistry at the time of his death, was largely responsible for the expansion of organic chemistry in this State during the post-war years.

He graduated from the University of Sydney with first class honours in 1930 and completed his M.Sc. in 1932. He later went on to Oxford where he worked in the Dyson Perrins Laboratories and was awarded the degree of Doctor of Philosophy in 1937.

White first lectured in Organic Chemistry at the University of Sydney and was then appointed biochemist to its School of Public Health and Tropical Medicine. In 1941 he became lecturer in Organic Chemistry at Melbourne University and in 1943 joined the University of Western Australia as Lecturer in Charge of the same discipline. He was appointed Reader and Head

of this Department in 1945 and in 1958 became the University's first Professor of Organic Chemistry.

His early research on essential oils developed into the broader field of plant chemistry particularly in relation to the flora of this State. His varied contributions to science covered work on tannins, coumarins, alkaloids, terpenoids and the oestrogenic isoflavones of sub-terranean clover.

A period of study leave in 1950-51 was spent at the Technical High School, Zurich, where White developed a specialised interest in polyterpenes on which he later became an authority.

Despite his great interest in research, he was an able administrator and served as the Dean of the Faculty of Science from 1957 to 1959. He gave freely of his time to a number of scientific societies and was chairman of the organising committee of ANZAAS for the Perth Congress in 1959. In his long association with the Royal Society of Western Australia he acted on the Editorial Committee from 1954 to 1957, was a Council member in 1953-54, Vice President in 1954-55 and President in 1955-56.